Glossary

Abatement: Reducing the degree or intensity of, or eliminating, pollution, as in a water pollution abatement program.

Annual Flood Series: A list of annual floods for a given period of time.

Annual Low-Flow: The lowest flow occurring each year, usually the lowest average flow for periods of perhaps 3, 7, 15, 30, 60, 120, or 180 consecutive days.

Annual Runoff: The total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data: (1) acre-feet (AC-FT, acre-ft, af)– the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet, 325,851 gallons, or 1,234 cubic meters; (2) cubic feet per second per square mile (CFSM, (ft^3/s) mi^2) – the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area; (3) inch (In., in.) – the depth to which a drainage area would be covered with water if all the runoff for a given time period was uniformly distributed on it.

Aqueduct: (1) A pipe, conduit, or channel designed to transport water from a remote source, usually by gravity. (2) A bridge-like structure supporting a conduit or canal passing over a river or low ground.

Bacteria: Single celled organisms that can cause diseases.

Berm: (1) A narrow ledge or path as at the top or bottom of a slope, stream bank, or along a beach. (2) (Dam) A horizontal step or bench in the upstream or downstream face of an *Embankment Da*m.

Best Management Practice (BMP): A structural or nonstructural practice that is designed to prevent or reduce the discharge of pollutants to waterbodies and to minimize the impacts of changes in land use on surface and groundwater systems. Structural best management practices refer to basins or facilities engineered for the purpose of reducing the pollutant load in stormwater runoff, such as bioretention, constructed stormwater wetlands, etc. Nonstructural best management practices refer to land use or development practices that are determined to be effective in minimizing the impact on receiving stream systems such as the preservation of open space and stream buffers, disconnection of impervious surfaces, etc. BMPs also include treatment requirements, operating procedures, and practice to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bioretention Basin: A water quality best management practice engineered to filter the water quality volume through an engineered planting bed, consisting of a vegetated surface layer (vegetation, mulch, ground cover), planting soil, and sand bed (optional), and into the in-situ material. Also called rain gardens.

Bioretention Filter: A bioretention basin with the addition of a sand layer and collector pipe system beneath the planting bed.

Buffer: An area of natural or established vegetation managed to protect other components of a resource protection area and save waters from significant degradation due to land disturbances, also a R*iparian Buffer*.

Chesapeake Bay Preservation Areas: Any land designated by the County pursuant to Part III of the Chesapeake Bay Preservation Area Designation and Management Regulations and Code of Virginia, Section 10.1-2107. A Chesapeake Bay Preservation Area shall consist of a resource protection area and a resource management area.

Capacity: The amount of water that a channel can accommodate up to its bank full condition, which is dependent on its slope, roughness characteristics, and geometric shape.

Channel: A natural or manmade waterway.

Confluence: The joining point where two or more streams create a combined, larger stream.

Constructed Stormwater Wetlands: Areas intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

Detention Basin: A stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system. While a certain amount of overflow may also occur via infiltration through the surrounding soil, such amounts are negligible when compared to the outlet structure discharge rates, and therefore, are not considered in the facility's design. Since a detention basin impounds runoff only temporarily, it is normally dry during periods of no rainfall.

Easement: A legal instrument enabling the giving, selling, of taking or certain land or water rights without transfer of title, such as for the passage of utility lines. An affirmative easement gives the owner of the easement the right to use the land for a stated purpose. A negative easement is an agreement with a private property owner to limit the development of his land in specific ways.

Ecosystem: All of the component organisms of a community and their environment that together form an interacting system.

Embeddedness: The extent to which the spaces between particles on the streambed are filled with sediment.

Environmental Quality Corridor (ECQ): A county policy that aims to protect sensitive areas in stream valleys during the rezoning process. It was the precursor to Resource Protection Areas and is still applied when possible. The EQC policy does not directly address stormwater discharges; however, it is particularly relevant to the County's overall water quality management

program as it serves to identify, protect, and, in some cases, restore environmentally-sensitive resources. Specifically, the EQC policy recommends the preservation and restoration of areas including floodplains, steep slopes (slope gradients of 15% or greater) adjacent to streams or floodplains, wetlands connected to stream valleys, minimum stream buffers (variable in width depending on topography), and sensitive habitat areas. While there is no County regulation requiring EQC protection (Resource Protection Area and floodplain provisions in the County Code protect many, but not all, EQC areas), the application of the EQC policy during the zoning process has been effective in protecting, and in some cases restoring, environmentally-sensitive areas.

Erosion: (1) Detachment of soil particles under the influence of water and/or wind. (2) The wearing away and removal of materials of the earth's crust by natural means. (3) The process by which flood waters lower the ground surface in an area by removing upper layers of soil. As usually employed, the term includes weathering, solution, corrosion, and transportation. The agents that accomplish the transportation and cause most of the wear are running water, waves, moving ice, and wind currents. Most writers include under the term all the mechanical and chemical agents of weathering that loosen rock fragments before they are acted on by the transportation agents; a few authorities prefer to include only the destructive effects of the transporting agents. Various types of water erosion include:

- ***Accelerated*** – Erosion much more rapid than normal, natural, or geologic erosion, primarily as a result of the influence of the activities of man or, in some cases, of other animals or natural catastrophes that expose bare surfaces, for example, forest fires;
- ***Geological*** – The normal or natural erosion caused by geological processes acting over long geologic periods and resulting in the wearing away of mountains, the building up of floodplains, coastal plains, etc., and also referred to as natural erosion;
- ***Gross*** – A measure of the potential for soil to be dislodged and moved from its place of origin, not necessarily the amount of soil that actually reaches a stream or lake, but the amount of soil that can be calculated from water and wind equations;
- ***Gully*** – The erosion process whereby water accumulates in narrow channels and, over short periods of time, removes soil from this narrow area to considerable depths, ranging from 1–2 feet (0.3–0.6 meters) to as much as 75–100 feet (23–31 meters);
- ***Natural*** – The wearing away of the earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc., undisturbed by man, and also referred to as geological erosion;
- ***Normal*** – The gradual erosion of land used by man that does not greatly exceed natural erosion;
- ***Rill*** – An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently cultivated soils and/or recent cuts and fills;
- ***Sheet*** – The removal of a thin, fairly uniform layer of soil from the land surface by runoff waters;
- ***Shore*** – Removal of soil, sand, or rock from the land adjacent to a body of water due to wave action;
- ***Splash*** – The spattering of small soil particles caused by the impact of raindrops on wet soils. The loosened and spattered particles may or may not be subsequently removed by surface runoff;

- ***Streambank*** – Scouring of material and the cutting of channel banks by running water;
- ***Streambed*** – Scouring of material and cutting of channel beds by running water;
- ***Undercutting*** – Removal of material at the base of a steep slope or cliff by falling water, a stream, wind erosion, or wave action; the removal steepens the slope or produces an overhanging cliff.

Eutrophication: The process by which a body of water becomes enriched in dissolved nutrients (as phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen.

Exceedance: (Water Quality) The violation of the pollutant levels permitted by environmental protection standards.

Fecal Coliform Bacteria: A group of organisms common to the intestinal tracts of humans and animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

First Flush: The first portion of runoff considered to contain the highest pollutant concentration resulting from a rainfall event.

Floodplain: Those land areas in and adjacent to streams and watercourses subject to continuous or periodic inundation from flood events.

Geographic Information System (GIS): A method of overlaying spatial land and land use data of different kinds. The data are referenced to a set of geographical coordinates and encoded in a computer software system. GIS is used by many localities to map utilities and sewer lines and to delineate zoning areas.

Grassed Swale: An earthen conveyance system that is broad and shallow with check dams and vegetated with erosion-resistant and flood-tolerant grasses, engineered to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.

Headwater: The source of a stream or watershed.

Hydrology: A science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere.

Imperviousness or Impervious Cover: A surface composed of any material that significantly impedes or prevents natural infiltration of water into soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

Infill: A residential development that has occurred proximate to, or within, an already established neighborhood.

Low-Impact Development (LID): Integrated hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. The primary goal of Low Impact Development methods is to mimic the predevelopment site hydrology.

Major Floodplain: Those land areas in and adjacent to streams and watercourses subject to continuous or periodic inundation from flood events with a 1% chance of occurrence in any given year (i.e., the 100-year flood frequency event) and having a drainage area equal to or greater than 360 acres.

Marsh: A wet area, periodically inundated.

Mitigation: To make a scenario less harmful in the original condition; or to provide a habitat in another more conducive, larger, or better-suited area, typically in a different location from the original. Mitigation may result due to constructability, cost, or other site restriction issues.

Modeling: The application of a mathematical process or simulation framework, to describe various phenomenon and analyze the effects of changes in independent (i.e., explanatory) variables on dependent variables.

Nonpoint Source Pollution: Contaminants such as sediment, nitrogen, phosphorous, hydrocarbons, heavy metals, and toxics whose sources cannot be pinpointed but rather are washed from the land surface in a diffused manner by stormwater runoff.

Peak Flows: The maximum instantaneous discharge of a stream or river at a given location. It usually occurs at or near the time of maximum stage.

Peak Discharge: The maximum rate of flow at an associated point within a given rainfall event or channel condition.

Pervious Cover: Any ground cover material that allows water to penetrate to the soil below.

Point Source: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Post-Development: Refers to conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.

Pre-Development: Refers to the conditions that exist at the time that plans for the land development of a tract of land are approved by the plan approval authority. Where phased development or plan approval occurs (preliminary grading, road, and utilities, etc.), the existing conditions at the time prior to the first item being approved or permitted establishes the pre-development conditions.

Redevelopment: The substantial alteration, rehabilitation, or rebuilding of a property for residential, commercial, industrial, or other purposes.

Resource Protection Area (RPA): RPAs are the corridors of environmentally sensitive land that lie alongside or near the shorelines of streams, rivers and other waterways. In their natural condition, RPAs protect water quality by filtering pollutants out of stormwater runoff, reducing the volume of stormwater runoff, preventing erosion and performing other important biological and ecological functions. State Regulations and county ordinances allow certain limited activities within areas mapped as RPA, however, larger land disturbing activities are prohibited unless a special exception is granted.

Retention: The permanent storage of stormwater.

Riparian Area: Land adjacent to a stream that is saturated by ground water or intermittently inundated by surface water at a frequency and duration sufficient to support the prevalence of vegetation typically adapted for life in saturated soil. It is the transition area between the aquatic ecosystem and the nearby, upland terrestrial ecosystem. Zones are identified by soil characteristics and/or plant communities and include the wet areas in and near streams, ponds, lakes, springs and other surface waters.

Riparian Buffer: Strips of grass, shrubs, and/or trees along the banks of rivers and streams filter polluted runoff and provide a transition zone between water and human land use. Buffers are also complex ecosystems that provide habitat and improve the stream communities they shelter.

Rip Rap: A layer rock or stone randomly placed on banks and swales that is used to prevent erosion. Rocks size is chosen to withstand erosive forces, with larger sizes used in areas subjected to higher energies.

Runoff: The portion of precipitation that flows across the land surface that ultimately reaches streams often with dissolved or suspended material.

Sediment: Material, both mineral and organic, that is in suspension, is being transported, or has been moved from its original site of origin by water or wind. Sediment piles up in reservoirs, rivers and harbors, reducing channel depth, impeding navigability, destroying wildlife habitat and clouding water so that sunlight cannot reach aquatic plants.

Sedimentation (Settling): A pollutant removal method to treat stormwater runoff in which gravity is utilized to remove particulate pollutants. Pollutants are removed from the stormwater as sediment settles or falls out of the water column.

Stakeholder: Stakeholders include a range of groups within the watershed (residents, industry, local government, agencies, community groups, etc.), as well as those whose livelihoods take them into the watershed.

Stormwater: Stormwater discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events that often contain pollutants in quantities that could adversely affect water quality.

Stormwater Management Facility: A device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

Subwatershed: A smaller subsection of a larger watershed, which may have been delineated to describe a particular land use, function, or hydrologic condition.

Total Maximum Daily Load (TMDL): A TMDL is a tool used to improve the water quality of water bodies that do not meet water quality standards. These water bodies are listed in Section 303(d) of the Clean Water Act as Impaired Water Bodies. The tool limits the pollutant loads allowable from each pollutant contributor in the watershed to levels that will ensure that the water quality standard is achieved.

Urbanization: The process of changing the landscape from one dominated by natural, undeveloped areas to developed areas with less natural area and more paved surfaces.

Water Quality Standard (WQS): A law or regulation that consists of the beneficial use or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement.

Watershed: The area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or groundwater.

Wetlands: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

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